To: Riddle, Diane@Waterboards[Diane.Riddle@waterboards.ca.gov]

From: Vendlinski, Tim

Sent: Thur 7/31/2014 9:29:18 PM

Subject: Moyle et al. studies on salmonids, reservoirs and cold water pools, and adaptive management

Hi Diane:

I drafted this message long ago, but I don't think I ever sent it to you.

I got stuck because the verbal observation made by Dr. Moyle in the radio program (Living on Earth) was not immediately traceable to his peer-reviewed and published work.

It might be worth scheduling some time with him and other experts to explore this line of thinking further.

See you tomorrow. Tim

----Original Message----

From: Vendlinski, Tim

Sent: Wednesday, June 11, 2014 12:31 PM To: Cabrera-Stagno, Valentina; Erin Foresman

Cc: Kemmerer, John

Subject: Moyle et al. studies on salmonids, reservoirs and cold water pools, and adaptive

management Importance: High

I pasted-in a link to an excellent interview with Dr. Moyle.

Steve Curwood (Living on Earth) references "a recent study", and I think he's referring to the "Climate Change Vulnerability..." article pasted in below.

For good measure, I also included two other studies for which Dr. Moyle was involved in case their findings can help inform our collective policy and management decisions for the Bay Delta WQCP.

The "pull quote" from the radio interview was what I was echoing to Diane Riddle yesterday.

Thanks, Tim

California's Fish in Trouble

Many of the fish that swim in California's rivers can be found nowhere else in the world. But as fish biologist Peter Moyle tells host Steve Curwood, some of those unique species may be in trouble and threatened with extinction.

http://www.loe.org/shows/segments.html?programID=13-P13-00023&segmentID=4

"...the biggest single thing you can do in California from a water management point of view is to re-upgrade our dams. We have roughly 1,500 really large dams in the state and another couple thousand that are smaller. Most of these dams do not release enough water below them. The way you release water is you have to maintain your cold water pool in the reservoirs because in reservoirs water stratifies. It flows into the reservoir in the winter when the water's cold. The cold water sinks to the bottom, and then you get this surface water that's really warm. But most reservoirs can release water from the bottom. When they do that, you're releasing the cold water that native fishes like salmon really like. So you have to conserve that cold water and use it specifically for fish as long as you can during the summer months."

"Climate Change Vulnerability of Native and Alien Freshwater Fishes of California: A Systematic Assessment Approach"

http://www.plosone.org/article/info:doi%2F10.1371%2Fjournal.pone.0063883

"Water Management Adaptations to Prevent Loss of Spring-Run Chinook Salmon in California under Climate Change"

Read More: http://ascelibrary.org/doi/abs/10.1061/%28ASCE%29WR.1943-5452.0000194

"Adaptive Management and Science for the Delta Ecosystem"

http://www.escholarship.org/uc/item/1h57p2nb/#page-1

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